

Feeding a signal derived from this voltage drop U_{RM} to a second input port of said comparator stage 112"

Comparing the voltage level of the signal derived from said voltage drop U_{RM} with the voltage level of said reference signal V_{ref}

Feeding a signal which is proportional to the difference $(U_{RM} - V_{ref})$ between the signal derived from said voltage drop U_{RM} and said reference signal V_{ref} to the first input port of the variable-gain power amplifier 105

Adjusting the actual power level P_{out} by amplifying the low-pass-filtered difference between the output signal of said comparator stage 112" and the RF signal x(t) to be transmitted before being amplified at the second input port of the variable-gain power amplifier 105

Fig. 4b

S4

S5

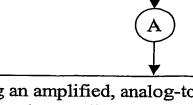
S6

S7



Detecting the voltage level V_{PD} of a feedback signal representing the reflected wave of an RF signal x(t) to be transmitted

S1



Multiplying an amplified, analog-to-digital-converted, amplitude-limited and normalized version $K \cdot G_{OP} \cdot V_{PD}$ of the feedback signal V_{PD} representing the reflected wave of the RF signal x(t) to be transmitted by a reference ramp signal V_{ramp} generated by a baseband block 201, wherein G_{OP} denotes the gain factor of an operation amplifier 303 used for amplifying said feedback signal V_{PD} and K is a normalization factor (in V-1)

Sla'

Adding the result $V_{ramp} \cdot K \cdot G_{OP} \cdot V_{PD}$ of the multiplication step S1a' to the reference ramp signal V_{ramp} , thus yielding a reference signal

$$\begin{aligned} V_{ref} &= V_{ramp} + V_{ramp} \cdot K \cdot G_{OP} \cdot V_{PD} = V_{ramp} \cdot \chi \\ & (\text{with } \chi := 1 + K \cdot G_{OP} \cdot V_{PD}) \end{aligned}$$

Sla"

representing the nominal power level P_{ref} for the desired output power level of the RF signal x(t) to be transmitted whose reflected wave is fed back to the APC loop 101M via the feedback chain of said feedback loop 101N

B

Fig. 4c



Detecting the actual power level P_{out} of the RF output signal x(t) by measuring the voltage level V_{PD} of a feedback signal representing the reflected wave of the RF signal x(t) to be transmitted

S1



Multiplying a gain factor $\chi := 1 + K \cdot G_{OP} \cdot V_{PD}$ supplied by the gain factor control unit 301c, wherein G_{OP} denotes the gain factor of the operation amplifier 303 and K is a normalization factor (in V⁻¹), by the reference ramp signal V_{ramp} generated by the baseband block 201, thus yielding a reference signal

$$V_{ref} = V_{ramp} \cdot \chi = V_{ramp} + V_{ramp} \cdot K \cdot G_{OP} \cdot V_{PD}$$

S₁b

representing the nominal power level P_{ref} for the desired output power level of the RF signal x(t) to be transmitted whose reflected wave is fed back to the APC loop 101M via the feedback chain of said feedback loop 101N



Fig. 4d